2003 Greater Lake Washington Chinook Workshop
January 24, 2003
Shoreline Center

Notes on the Synthesis Discussion

NOTE: These notes reflect comments given during an ongoing discussion between many participants.

- Kurt Fresh: We know a lot about the greater Lake Washington system.
- Kurt Fresh: Two types of studies:
  -inventories: these provide estimates of salmon numbers useful for monitoring
  -mechanisms of mortality
- Kurt Fresh: These studies can lead to two types of actions:
  -more research (ex. streamlife estimates)
  -management responses –can we use this information to change management?
- Kurt Fresh: I would like to throw out a hypothesis for discussion: that rearing habitat in the Cedar River is more limiting than spawning habitat, and floodplain restoration is one of the best actions to address this issue. Opinions?
  -Roger Peters: Floodplain restoration is important, especially restoring stream banks to more natural conditions (e.g., less riprap). Need shallower slope, overhanging vegetation, or, in areas where floodplain can't be restored, better ways to stabilize banks to make more fish friendly. There is a need for off-channel, side channel, and backwater areas on the Cedar for chinook rearing. Hard to say if rearing habitat is more limiting than spawning.
  -Dave Seiler: Given the low number of smolts per adult, I agree that with Kurt's hypothesis that rearing habitat may be limiting but this hasn't really been figured out. We only have four years of data on smolt production. With years of higher escapements and low winter flows, a production curve could be generated with respect to density.
  -Dave Pflug: The lower Skagit River also has bank armoring and we see the same trends there as are seen on the Cedar.
  -Dave Seiler: The Cedar River has both reared and immediately migrating fry – the presence of the outmigrating fry may mask the effect of limited rearing habitat on later migrating smolts.
  -Eric Warner: We measure production at two spots, outmigration as fry/smolts and adults. Survival is a function of a combination of life history strategies and we don't know how each strategy ends up – one may have better survival than another.
  -Kurt Fresh: We also don't know how well the fish do in the lake – there is no estimate of fish leaving the system, which is the ultimate measuring point.
- Phyllis Meyers: So is habitat in the lake limiting?
  -Roger Tabor: Difficult question: from research in the lake, the chinook seem to do fine. They seem to grow fast, are always there. There doesn't appear to be a lot of predation on juvenile chinook, based upon observations from February through May. Habitat in the lake could be greatly improved but may not be limiting.
- John Ferguson: As an outsider to the Cedar/Lake Washington Basin, and given the ecosystem and the tremendous amount of data you have, I would say that things are ripe for being put into a model. From this exercise you could learn what are the limiting data sets and where do

you start to put management money and recovery actions? Lake Union (given temperatures)? Lake Washington shoreline? The data needs to be integrated into management decisions.

-Kurt Fresh: We should focus on multiple species, not just chinook, and look at this on a system level. Jonathan, will the Ecosystem Diagnosis and Treatment (EDT) model leads us there (management decisions and data gaps)?

-Jonathan Frodge: On an optimistic day, I would say "yes". We are trying to synthesize data on a regional basis. If we can do that, we will have management applications.

-Kurt Fresh: Compared to other systems, we have a lot of information and we should be able to pull it together.

-Greg Blair: However, the Lake Washington system is very complicated and has elements that other Puget Sound systems don't have such as the Locks, Ship Canal, and Lake Washington.

- Kurt Fresh: But the basin is information-rich which is an advantage.

- Geoff Clayton: On the aspect of predation, there seems to be opposite opinions on whether it is a problem – in Lake Washington the thought is no, in Lake Sammamish the thought is yes. How to resolve this for EDT?

-Brian Footen: Predation is significant by a few key species (e.g., perch, cutthroat given population size). Is it greater than the amount you'd expect in a more natural system? Yes, based upon the urbanization and how that may boost populations of cutthroat and introduced species.

-Roger Tabor: Perch respond to an artificial situation – hatchery releases.

-Keith Kurko: There is confusion over the predation issue which hopefully the 2003 PIT tag and micro-acoustic tagging studies on juvenile chinook tracking with micro-acoustic tags will shed some light by tracking and isolating mortality along the migration route. We hope to get more information from microacoustic tags this year..

-Kurt Fresh: Predation may be spatially specific – what happens in Lake Sammamish may not be the same in Lake Washington or the Ship Canal. In Lake Washington, cutthroat may be most important. Smallmouth bass in Lake Washington have been looked at and don't seem to be a problem but in the Ship Canal they need further attention.

- Paul Hage: Whether spawning or rearing habitat is limiting in the Cedar, riprap/levee removal is important in either case. There are houses behind the riprap. Where does that fit with future actions and their outcomes? Where is the money to come from? How does that fit with the future increase in population? What is the public will, what will they support and how do we deal with private homes?

-Kurt Fresh: Salmon recovery is not free – this is a tough question to answer.

-Paul Hage: NMFS will make the call on feasibility of doing recovery actions – will that include a reality check of cost? Seems that there is not a public willingness to pay.

-Derek Poon: The Shared Strategy is a process to work through this.

-Larry Fisher: Levee removal and floodplain reconnection are being done on the Cedar River – some projects have been completed and some put on hold for the lack of money. Levee removal is included in future actions on the Cedar but in this hard economic time, it is hard to be optimistic about funding.

-Kurt Fresh: We at least have science, there will be money to continue research. "Too expensive" is an economic decision.

-Jean White: Along the Cedar, past levee removal projects were flood buyouts – a long, expensive process. If science understands the system, it helps secure funding and pursue buyouts, among other things.

-Jean White: Interesting that Sue Perkin's talk pointed out that construction of groundwater-fed channel precludes floodplain connection – there are such channels in the Elliot reach and many juvenile chinook using this Elliot area.

-Roger Peters: Chinook were seen in the natural side channels, although these were later converted to spawning channels.

-Fred Goetz: We need to keep scale in our perspective (i.e., basin-scale). In the Green River, $115 million has been approved for addressing gravel blocked by the dam, fish passage, and LWD. If the public has a purpose, a will, and a well-defined process, it can get done. The tradeoff is between people and the system when considering re-creating habitats. The band-aid approach involves maintenance. This is a perspective to think about – are mitigation projects with maintenance worth it or is it better to have a project where the river can create/maintain habitats on its own? It is the basin perspective versus piecemeal projects – this is a scientific and societal problem. Do we look at one species, as we are doing? We need to look at the system. Looking at a basin or watershed approach helps, but it is not complete. It is a people management issue – are we willing to address system needs versus people needs? So far the solutions have been engineered – this does not have a system approach to address physical, chemical and biological processes.

- Lynn Best: For funding, we are asking the questions – what information do we need to answer them? This is a great time to think about our questions and looking for a different angle. For example, opening up the area above Landsburg dam – we should think about what we already know and what we still need to know. Funding is generated by success and science feeds into that success.
- Kurt Fresh: In summary, what do we need to do to increase the numbers of fish, life history diversity, etc.? We need to define our next questions. What more do we need to know? Do we know enough to take an action, or to decide we can't do anything?